



Glenn Research Center



## **CGEL-2/CDOT-2 STS-95**

### **CDOT-2 sample 18 as compared to CGEL-2 samples 5 and 6**

- Crystallites are always packed tighter than the surrounding fluid from which they grow, hence they always want to fall if gravity is present. As the crystals fall they can become distorted in shape. This is the case for CDOT-2 sample 18. On Earth the affect of gravity is to shear off the delicate crystalline “arms” that were seen to grow in microgravity.
- Unlike the CGEL-2 samples, the particles in this CDOT-2 colloidal crystal are a single size (monodisperse) and are of a volume fraction that allows rapid movement of the particles into their crystal lattice spots. Growth of the crystal rapidly “reaches” out into the solution forming dendrites.
- On the other hand...Binary colloidal crystals like those in CGEL-2 are more complicated than monodisperse colloidal crystals. The particles tend to take time to find the right spot to fit in to form a crystal. Therefore a thick layer of non-integrated particles cover the crystal and slowly they fit in, making a more uniform, smoother surface appearance (no dendrites).